

Amendments to the Claims

The listing of claims will replace all prior version, and listings, of claims in the application.

Listing of Claims

Claim 11 (Withdrawn)

A silicon controlled rectifier with a controlled guard ring structure comprising:

a substrate having a first conductivity type, a first lightly doped well region having a second conductivity type, and a second lightly doped well region having said first conductivity type adjacent to said first lightly doped well region within said substrate, wherein said second conductivity type opposites to said first conductivity type;

a first heavily doped region having said second conductivity type in said first lightly doped well region;

a second heavily doped region having said first conductivity type in said first lightly doped well region;

a third heavily doped region having said second conductivity type in said second lightly doped well region;

a fourth heavily doped region having first conductivity type in said second lightly doped well region;

a fifth heavily doped region having said second conductivity type in said first lightly doped well region;

a sixth heavily doped region having said first conductivity type in said first lightly doped well region and in said second lightly doped well region, such that said sixth heavily doped region overlaps a junction between said first lightly doped region and said second lightly doped well region;

an anode is electrically coupled to said first heavily doped region and to said second heavily doped region;

a switch having a first terminal and a second terminal, wherein said first terminal electrically couple to said second heavily doped region and said second terminal electrically couple to said fifth heavily doped region;

a control circuit is electrically to said switch; and

a cathode is electrically coupled to said third heavily doped region and to said fourth heavily doped region.

Claim 12 (Withdrawn)

The silicon controlled rectifier with controlled guard ring structure according to claim 11, wherein said fifth heavily doped region is a controlled guard ring.

Claim 13 (Withdrawn)

The silicon controlled rectifier with controlled guard ring structure according to claim 11, wherein said switch is a metal oxide semiconductor transistor.

Claim 14 (Withdrawn)

The silicon controlled rectifier with controlled guard ring structure according to claim 11, wherein said controlled circuit is a resistor-capacitor circuit.

Claim 15 (Withdrawn)

The silicon controlled rectifier with controlled guard ring structure according to claim 14, wherein said controlled circuit controlling the function of said switch.

Claim 16 (Currently Amended)

A silicon controlled rectifier with a controlled guard well ring structure comprising:

a substrate having a first conductivity type, a first lightly doped well region having a second conductivity type, a second lightly doped well region having said second conductivity type, and a third lightly doped well region having said first conductivity type adjacent to said second lightly doped well region within said substrate, wherein said second conductivity type opposites to said first conductivity type;

a first heavily doped region having said second conductivity type in said first lightly doped well region;

a second heavily doped region having said first conductivity type in said first lightly doped well region;

a third heavily doped region having said second conductivity type in said third lightly doped well region;

a ~~forth~~-fourth heavily doped region having said first conductivity type in said third lightly doped well region;

a fifth heavily doped region having said second conductivity type in said second lightly doped well region;

a sixth heavily doped region having said first conductivity type in said substrate and said first lightly doped well region, such that said sixth heavily doped region overlaps a junction between said substrate and said ~~second~~-first lightly doped well region;

a first node is electrically coupled said first heavily doped region and to said second heavily doped region;

a switch having a terminal, wherein said terminal is electrically coupled to said fifth heavily doped region;

a second node is electrically coupled to said switch;

a control circuit is electrically coupled to said switch; and
a third node is electrically coupled to said third heavily doped region and to said fourth heavily doped region.

Claim 17 (Original)

The silicon controlled rectifier with a controlled guard ring structure according to claim 16, wherein said second lightly doped well region is a controlled well guard ring.

Claim 18 (Currently Amended)

The silicon controlled rectifier with a controlled guard ring structure according to claim 16, wherein said switch is a metal oxide semiconductor transistor.

Claim 19 (Currently Amended)

The silicon controlled rectifier with a controlled guard ring structure according to claim 16, wherein said control circuit is a resistor-capacitor circuit.

Claim 20 (Currently Amended)

The silicon controlled rectifier with a controlled guard ring structure according to claim 19, wherein said control circuit controlling the function of said switch.

Claim 21 (Currently Amended)

A silicon controlled rectifier with controlled guard ring structure comprising:

a first lightly doped well region of a second conductivity type, a second lightly doped well region of said second conductivity type, and

a third lightly doped well region of ~~said~~ a first conductivity type in a substrate having said first conductivity type, wherein said third lightly doped well region adjacent to said second lightly doped well region, and said second conductivity type opposites to said first conductivity type;

a first node is electrically coupled to a first heavily doped region of said second conductivity type and to a second heavily doped region of said first conductivity type, wherein each said heavily doped region ~~in the~~ has a concentration is higher than each said lightly doped well region;

a switch having a terminal, wherein said terminal is electrically coupled to a fifth heavily doped region;

a second node is electrically coupled to said switch, wherein the ~~polarity~~ electrical type of said second node is same as said first node;

a third node is electrically coupled to a fourth heavily doped region of said first conductivity type and to a third heavily doped region of said second conductivity type, wherein said ~~electrical~~ polarity type of said third node opposites said first node and said second node; and

a control circuit is electrically coupled to said switch.

Claim 22 (Previously Presented)

The silicon controlled rectifier with a guard ring structure according to claim 21, wherein said switch is a metal oxide semiconductor transistor.

Claim 23 (Previously Presented)

The silicon controlled rectifier with a guard ring structure according to claim 21, wherein said first node and said second node is anode.

Claim 24 (Currently Amended)

The silicon controlled rectifier with a guard ring structure according to claim 23, wherein said first node and said second node can be electrically coupled to different application voltage respectively.

Claim 25 (Previously Presented)

The silicon controlled rectifier with a guard ring structure according to claim 21, wherein said second node can electrically coupled to said first node, such that said first node and said second node can be electrically coupled to an application voltage.

Claim 26 (Previously Presented)

The silicon controlled rectifier with a guard ring structure according to claim 21, wherein said third node is cathode.

Claim 27 (Currently Amended)

The silicon controlled rectifier with a guard ring structure according to claim ~~22~~21, wherein said ~~fifth—heavily—doped region~~second lightly doped well region is a controlled guard ring.